

1961



mm.

MSL S - ~~1938~~  
March 1938 - 1939  
1938 - 1939

~~1938~~  
~~1939~~

7378

0859

industrially less important districts are mapped on a scale of  $\frac{1}{62,500}$ , or about 2 miles to an inch, and cover areas measuring  $30'$  in latitude and longitude. Reconnaissance maps of desert or sparsely inhabited regions have been made on a scale of  $\frac{1}{250,000}$ , or about 4 miles to an inch, covering areas measuring  $1^{\circ}$  in latitude and longitude. Maps for special purposes are made on scales larger than  $\frac{1}{62,500}$ .

A topographic survey of Alaska has been in progress since 1898, and nearly 35 per cent of its area has now been mapped. About 10 per cent of the Territory has been covered by reconnaissance maps on a scale of  $\frac{1}{625,000}$ , or about 10 miles to an inch. Most of the remaining area surveyed in Alaska has been mapped on a scale of  $\frac{1}{250,000}$ , but about 3,500 square miles has been mapped on a scale of  $\frac{1}{62,500}$ .

A large part of the Hawaiian Islands has been surveyed, and the resulting maps are published on a scale of  $\frac{1}{62,500}$ .

The features shown on these maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The conventional signs used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

1961

0859



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0861

(3)

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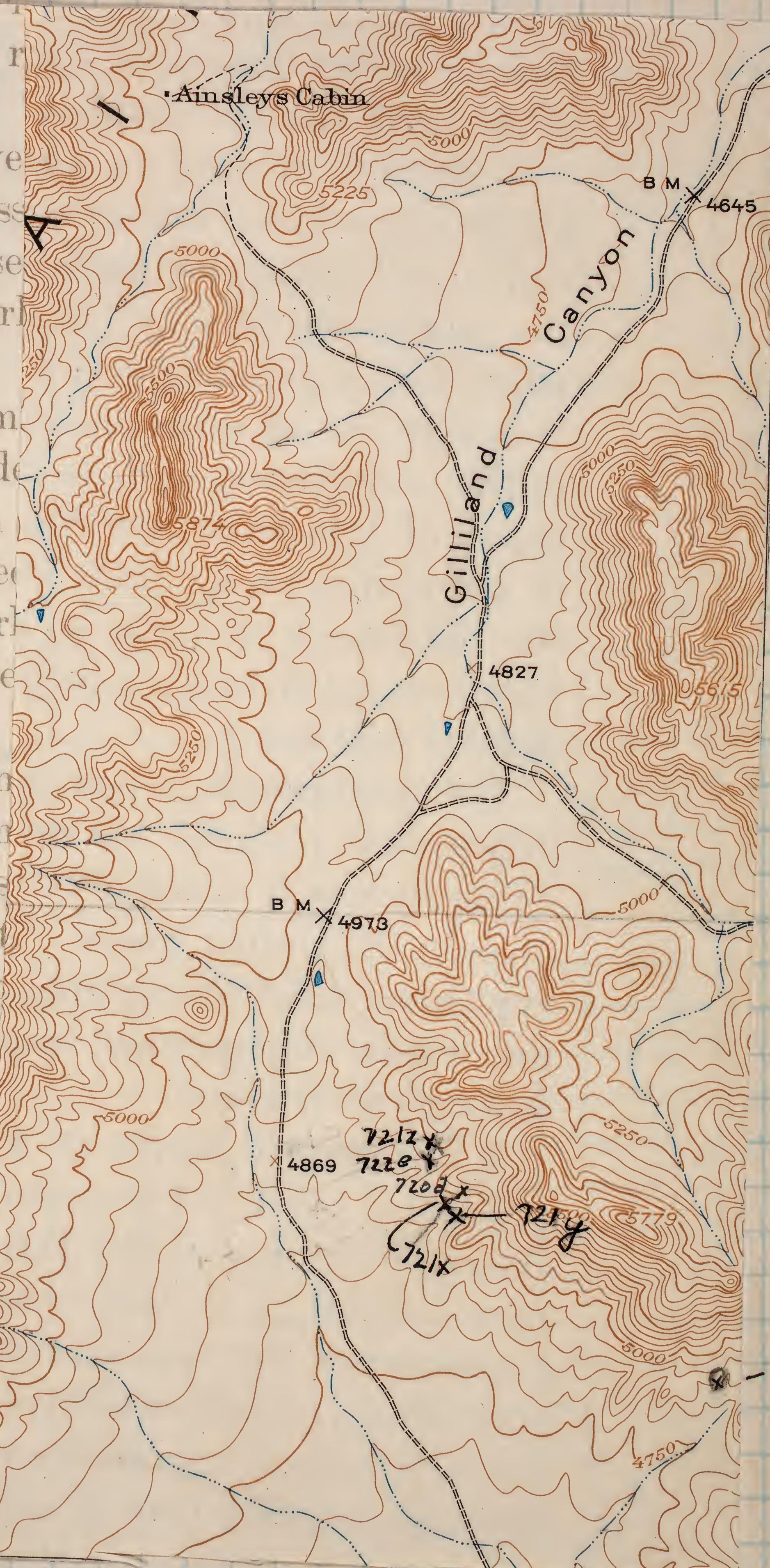
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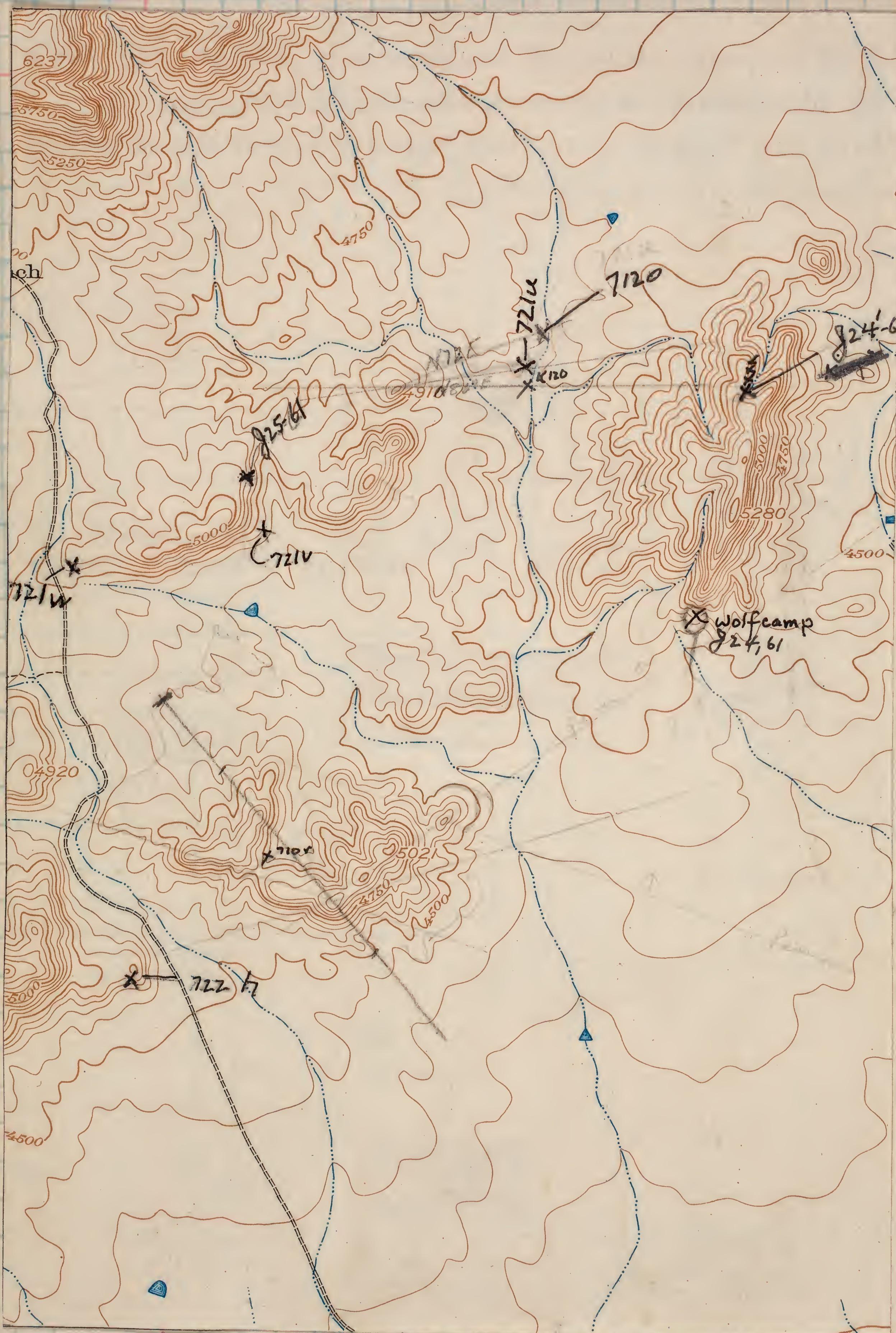


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0662

(A)



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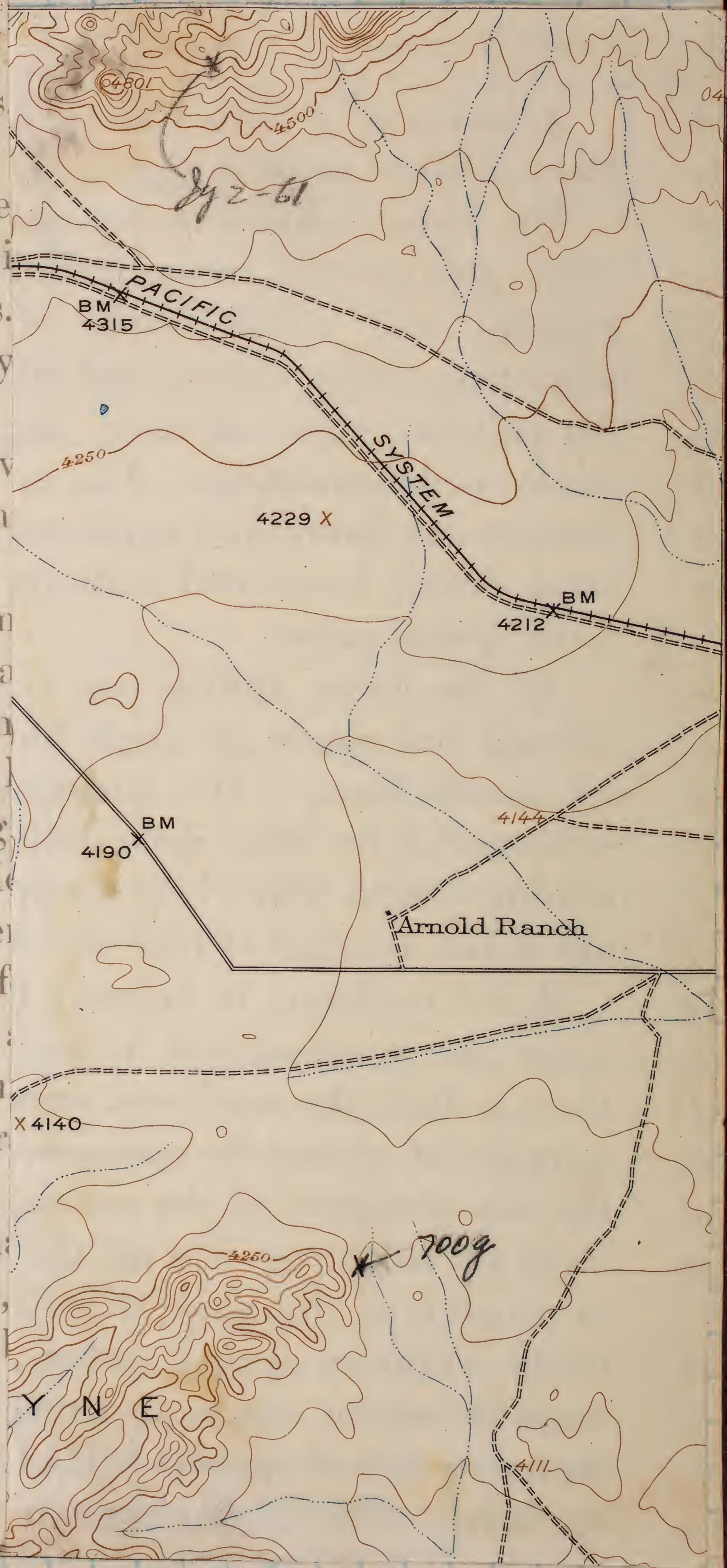


0863

ing spurs separated by ravines, their lower ends by a sea cliff. abruptly at the valley in a steeply away and forms an island. features is represented, directly sketch, by contour lines.

The contour interval, or the vertical distance between one contour and the next, is stated on the map. This interval differs according to the country mapped: in a flat country it may be a mile; in a mountainous region it may be a hundred feet. It is often so great that the contours may be read in pairs. Contours every fourth or fifth, are made double. Contours accompanied by figures showing points—such as road intersections and benchmarks—are also given. Contours show altitudes to the nearest foot. Figures for the altitudes of benchmarks are given in the Survey's bulletins on spirit leveling, triangulation and transit-traversing, and in the bulletins.

Lettering and the works of man, such as those of a State, ship, or reservation, are shown in different kinds and weights. Good roads travel the greater part of the country; poor public roads and



0863

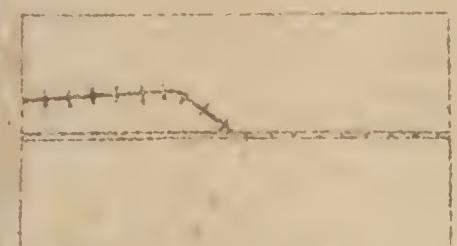


0864

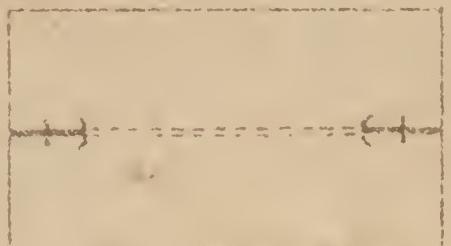
NATIONAL SIGNS

CULTURE

(Printed in black)



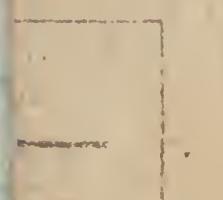
Electric railroad



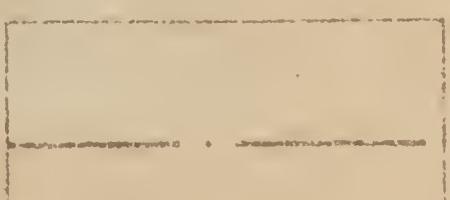
Tunnel



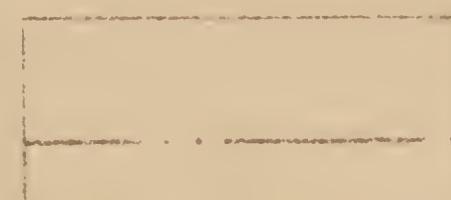
Wharves



Boundary line



Reservation line



Land grant line



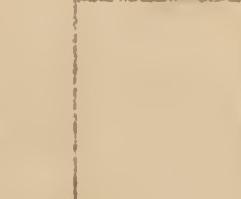
City, village, town, or city boundary



Prospect



Shaft



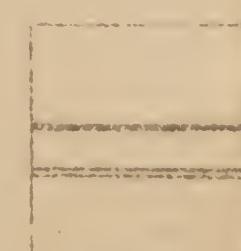
Mine



Falls and rapids



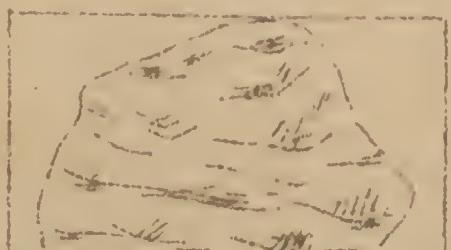
Intermittent streams and ditches



Canal ditch



Intermittent lake



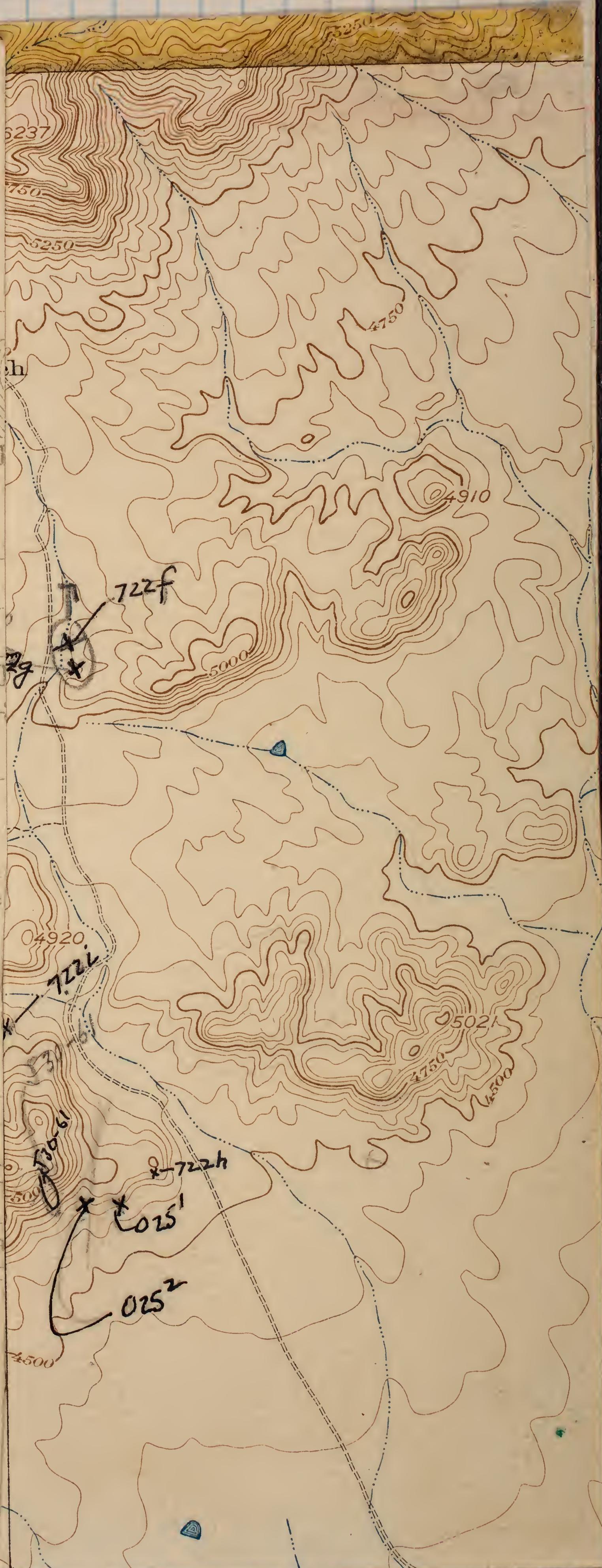
Glacier  
(Or shown by contours printed in blue.)



Spring Well

WOODS

$$\oint 30 \cdot 67 = 722 \text{ m}$$



0864

7

mm mm



$$\int 30 \cdot 61 = 722a$$

Numbers available

722

w, x, y, z.

Ode 5  
Parkway Hotel  
C. V. Horn

(8)

June 9

Purchase of \$1400 Traveler's cheques -- 14.00  
5 rolls film (36 exposures) --- 11.63

June 12

\$120 in Traveller's cheques  
\$20 T 96-091-447-449 } belong to Cooper = \$10  
\$30 P 77-541-880

Zoey, Zennie, Jeb, Zephyr, Dacie

Zennie Dacie lives at ranch

June 17<sup>th</sup> - About the fifth day of rain in Marathon - first for us. Every thing soaked. Went to Alpine in morning to buy supplies: sacks, pencils, traps, etc. Met Dave Allan there and obtained his permission to go on the ranch. On way home called on Zennie Dacie who manages The Dacie place. Travis Roberts is man to see to get on Arnold place.

June 18

Pictures Ekt. 6, 7 2 views of 721 j.

Spent morning working at 721 j. The small rhynchonellids occur about 20' below the top of The Lower Word but are rare. Indeed all fossils are difficult to find well concentrated. The bed with small Leptodus appears to be in lower part of upper tier of bioherms, roughly 20-25 feet below the top of The Lower Word ledge.

In afternoon explored slope of hill 54.5.3 but found very few fossils suitable for etching. Here, like at 721 j the lower word has 3 thick biohermal bands.

19  
—  
95  
—  
103



0866

9

The lowest beds at 719 W on hill 5453 consist of 10-15' (possibly 20') of massive limestone showing in long slender coral and *Coscinophora*, the latter of considerable size. This was followed by about 40' of bedded gray limestone moderately thick bedded. The upper bedding surface often with a skin of silica. The upper part of this bed is heavier bedded than below but not massively biohermal.

Lower Word 719 W Above this layer of 40' which is poorly exposed on the surface because the layers go to pieces come bedded limestone moderately thick beds becoming biohermal at the top and in places forming a prominent ledge. The whole is 3d' thick the upper part 10-15'.

Bio D 30' C. The final layer is massively biohermal at top, in places 15-20" but the lower ten feet or more are light weathering blocky limestone, often containing a small rhynchonellid and in places lenses of fusulines.

B Bio 15' Orthotilia is common and small A Cosin. 20' rounded silicious masses are common. *Coscinophora* was seen in all parts of the Lower Word limestone and this is a good index to this level.

721j locality: - In 1957 one piece from this locality contained a fauna similar to that of 702c and it was thought that Upper Leonard was present. Restudy of the section leads me to believe that it is all Lower Word and no Leonard is present, also

(B)

large Pennsylvanis well up in the lower Biohermal part of the Lower Word. The Fort Stockton road has been remembered in US 385.

June 19.

Ect 8 - Hess Ranch and hill to north

8-16 - Sponge bed

17, 18 = 702c from west

19, 20 = View up Hess Canyon showing bedded Hess opposite the Horst

21 - View loc same east from near Hess Ranch to show thin bedded Hess limestone

719x - just south of 721j. 4 blocks

On spur between two arroyos under Knob at 5250 at base of sequence are some 25-30' of massive biohermal limestone containing Cocinophora and other fossils. We took four blocks which contain large products from about 10' above the lowest exposed rock. This appears to contain a fauna like 702c but as nearly as I can tell it is definitely part of the lower Word limestone. This is the same material as we took from 721j or fy 1959 but designated by a separate number.

In morning visited Word I near the divide near 702c. This is all dolomitized. Went to sponge beds for photographs

(11) June 20-

1K1 - Brachiopoda at base of big bioherm

1K2 - Bioherms on hill

1K3 - Lime sand ledge at base of bioherms  
 on slope = 719y. Cobble beds for 1 or 2 feet  
 below heavy ledge which contains many  
 small detrital fossils. Main mass of  
 bioherm lies over this layer which dips  
 toward the bioherm center. Bioherm center  
 has few fossils at least not on the  
 surface. *Heliospongia* abundant.

On SE slopes the basal calcarenite is  
 3-4 feet thick, followed by soft cobbley beds,  
 then irregularly bedded calcarenite capped  
 by a flat calcarenite to the main  
 biohermal mass which is a calcarenite.  
 All these beds dip steeply toward the  
 bioherm. The calcarenite beds have  
 numerous *Heliospongia*.

1K4,5 - view of NE side hill showing  
 thick flat calcarenite & knob above it720Z - 1K6 - Close-up of knob at King 105  
 = 722u1K7,8 view from 720E showing K105 and  
 719y. 7 taken with 75mm719Z about 50 above valley floor  
 lens in the lower Ward 4

1K9 - blue flowers

No collecting possible at 720Z  
 so went over to the Ward 4 opposite  
 the divide in Horse Canyon. The  
 lowest beds with fossils were about  
 50 feet above the level of the divide.

(B)

This is locality 7192. Another location about 100 yards west is called 720<sup>y</sup> and is about 50' higher. In both places the fossil beds form lenses and are near the base of Word 4, probably below the base

720<sup>z</sup> is used to denote a large isolated bioherm of *Baculimella* beds just west of 720<sup>e</sup>.

719<sup>y</sup> is a series of bioherms on the slope just west of 720<sup>z</sup>. They contain abundant *Baculimella* and the calcarenous beds under and dipping toward the bioherms are well displayed along the slope into the ravine.

		721g-Q June 21 - just under 5674
<sup>10'-15'</sup>	F	Basal beds very massive limestone with long slender corals and masses of <i>Cocinophora</i> . The <i>Cocinophora</i> ind. corals occupy the lower 10', the middle 15' are mostly coarse calcarenous with few fossils. The upper 7'-10' contain <i>Cocinophora</i> and this forms the top of the biohermal basal bed. This is similar to the section at 719 <sup>x</sup> where <i>Cocinophora</i> is in the lower biohermal but the beds with varied fauna are below <i>Cocinophora</i> and are apparently not exposed here.
38'	E	
15'	D	
16'	C	
1'	B	
32' <sup>total</sup>	A	B - 6.5' vertical of blocky, light gray weathering fine grained <i>Gildemeister</i> with abundance of <i>Parafusulina</i> terminating in a massive <del>E</del>

A - 6.5' vertical of blocky, light gray weathering fine grained *Gildemeister* with abundance of *Parafusulina* terminating in a massive ~~E~~

(13)

edge of fine grained calcarenite with  
thick (about 12 ft 6") of chert on  
top.

721gc C - 16' vertical of thin bedded platy calcarenite  
and patches of yellow shale interbedded  
with the darker limestone which is  
thicker, blocky frequently with  
numerous fossils.

D massive bluish calcarenite at base  
becoming dolomitic toward the middle  $5\frac{1}{2}'$   
to form a tan-colored rock with many  
pits and remnants of fossils. A break of  
5' mostly covered but with flint - bedded  
material follows and this by 10-15' of  
massive bluish calcarenite. Bed E  
forms the top of limestone of basal word.  
It is followed by orange-yellow platy  
shale. This is the lower part of the upper bioturbi-  
tated top of E is about level with a  
point halfway between the <sup>north</sup> ~~south~~ end  
knob on Leonard Mtn.

F is 10-15' of yellow shaly rock  
but with bluish lenses of rocks like  
D. The lenses are fossiliferous and  
suggest those of bed E.

1K10-14

1K10-14 - 10, 11, 12 Casing box at 721g.  
13 is back slope Leonard Mtn showing  
the Burnt house ls. 14 is looking east  
from 721g and showing massive  
upper edge of the lower word.

1K15 - looking up lower Hess Canyon  
Top of E is estimated to be at  
5200' on the slope.

(14)

721r -

3'  
shale  
1045'

E

A - shale covered

B - mealy bed with *Avidontulus*C - Sandstone + calcarenite, sandy +  
orange yellow on top.

D

D - shale covered

51  
C

E - Orange sandy beds

3-5'  
shale A  
?

B

Collections made from B - 2 blocks  
taken. 721r is estimated to be at 50%.721s - clm Coscinophora bioherm about  
1/3 way up in lower Word. Trilobite base721t Lower Coscinophora near base  
of lower Word.

709 - Knob at N end of west side  
Leonard Mtn. Mostly massive  
calcareous but much conglomerate in  
the limestone on west side. Saw  
Uncinulides and Crusticella. On north  
side knob limestone continues but beds  
dip toward Leonard Mt and consist  
of blocky dark limestone and  
limestone with numerous ammonites.  
I suspect that the ls of the knob  
lie way above the top of the Bunt  
House fm.

In going from the knob (709)  
to King's lot. 123. We went  
through yellow shale, hard and

(15)

brittle and some blue shale  
but saw isolated bioherms  
scattered about. The locality of King  
(123) suggests a bryozoan bed  
that has gone to pieces and spread  
out on a slope.

7215 - This comes from about top of  
Coscinophora zone of lower bed.

1K16 - Cactus

1K17 -

1K18 - View of 711g and L W above it.

1K19 - Cherty bed at top of King's fossil  
bed.

1K20 - 702c knot, close up from west

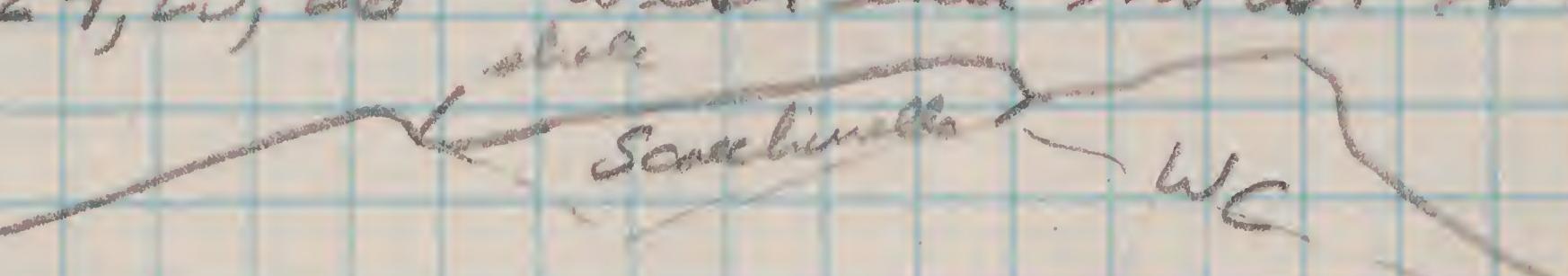
1K21 - small bioherm just east of 702c

722 - King's fossil bed of about 5450'  
Here it is quite thick and  
occupies about 30' vertical from bottom  
to top. Bottom is limestone conglomerate  
and top is a cherty limestone 4-5'  
thick, the chert being yellow to  
orange in color. Periliculansis is  
common about 1-2' below the  
top of the cherty beds. The beds  
between the lower cyl. and the upper  
chert are mostly cobbley limestone  
which goes to pieces and is  
thrown over the surface. Some  
big productids also about halfway  
up.

722' - Occurs near pass at headwater  
of Hess canyon. The fossil bed is thinner  
than at 722 but occurs at about 5400'  
Found Ischadium schenckii but it is very  
rare.

0873

⑯ IK 22, 23 - View of 706d and closeup of chart  
706d - is about opposite

IK 24, 25, 26 - West end horst showing profile  


IK 27 - Looking west at end of hill with  
Lower Word & showing Capitan in  
Distance.

IK 28 - Anostages biolum 703a  
IK 29-31 biolum at 703a.  
IK 32 - Leptodus ledges 703a'

June 23 - Spent morning looking  
at Word 4 with little success.  
Took 2 blocks from locality 706d.  
In afternoon went up to Hall  
Ranch for pictures of biolum and  
possible Word #1 blocks. Took 2  
blocks.

Road changed to run nearly  
parallel to Anostages ledges. Much  
erosion in old road showing up  
biolums in relief and the underlying  
yellow shale.

722t - blocks originally labelled  
720y but changed to 722t.

(17)

1K 33 - Mtn W of Dron Mtn from south

1K 34, 35 Wolfcamp nose of hill west of Dron Mtn 34 to NE 4 35 to NW

1K 36, 37 Southeast nose of Mtn W of Dron Mtn.

2R 1 - Hill west of Dron Mtn from N

2K 2 - near King 120.

2K 34 - West face Leonard Mtn

June 24

Went to Dron Mtn Ranch to south end of mtn west of Dron Mtn. Here saw about 50 feet of shale overlying orange yellow conglomerate and sandstone. Saw Wolfcamp fossils in float pieces. Saw no fossils in the shale. The Wolfcamp section appeared to me to be at base of a large block detached from the main part of the mountain. The cyl. overlying the shale dipped steeply into the mountain and a big gap appeared between it and the main mass of the mountain.

Went up northeast spur of this Mtn to King's locality 3 to see Anomolites and look for peculiar wimbley products. The latter occurs in the very top bed of the "Hees" and the Anomolites in the top 10 or 15'. The top of the Hees is very conglomeratic but the pebbles are small. The products occur mostly in the siliceous skin on the very upper surface of the

(B)

Hess limestone

Above the Hess is yellow silicious shaly rock, the typical Leonard, but it contains thin ( $6''$  to  $1'$ ) bed of dark granular limestone with many fossil

In the uppermost bed (top  $5'$ ) of the Hess cl saw *Chonetes* (large  $\pm$  *hesperensis*?), *Amidontus*, *Chonetes*, *Unio*, *Leptodus*, large *Strengiceras*, *Neckella*, *Dorbignia* and occasional large productids and a fine ribbed *Neospirifer*. The *Uncinuloides* suggests Hess of 70 m. The north spur of this hill nearly to the creek is all dolomite.

7214 - On bank of stream along road to Clay Slide a  $1\frac{1}{2}'$  layer of calcarenite with many fossils, especially *Oniscella*. Under the upper bloddy layer the rock is irregularly bedded with many large productids and large *Leptodus*. These lower layers suggest biogenic material. This bed is about  $\frac{1}{2}$  mile  $N 80^{\circ} E$  of hill 4910 and approximately in King's locality No. King gives the level as Lower Periaster horizon. Took 6 blocks on June 24.

0876

(19)

J 25-

2K4 - Clay Slide  
2K5 - Sullivan Peak from saddle w  
of Clay slide

2K-7, 8 Cap ledge at 710 u

7120 is N72°E of hill 4910 on the stream

In morning went to hill west of  
Clay slide hill for lower Word.  
Impossible to get up in valley  
between hills and found very little  
there.

Went to 710 u but found no good  
blocks.

Took a good block from 721 w  
Here we were near the base of the  
lower Word. Below the massive  
ledges come thin-bedded Word with  
Mycetes and other species but  
specimens are so scattered  
that no good pieces could be  
found.

On way home took 3 more  
pieces at 721 u.

(20)

2K 9 - View west from 720d.

720d - Leonard & Word contact I guess at about 4900 near mouth of ravine. Lower beds are massive with Coscinophora but also many other fossils. Perhaps 3' of these beds followed by thin-bedded limestone with yellowish silicious rock up to about 5038' where a bihermal bed with corals but very scattered fossils forms a bench.

46 higher up to about 5076' is another bench capped by blocky calcarenite, dark gray fossiliferous.

This ledge is followed by 15' of yellowish shale containing scattered calcarenite layers and small biherms. This is about the level of 720d, which is 5100'. Took 3 blocks from 720d.

2K 10 - Coscinophora at base of 721y

721x - Blocks from this come from the lower 30' of the Lower Word in the beds with Coscinophora. This is not common but was seen at the base. Took 4 blocks.

721y - On the hillside opposite 721x and in the same beds mostly bihermal limestone but fossils not well concentrated. One large patch of Coscinophora was photographed.

(21)

- 2K11 - Buzzards  
 2K12 - Incl. with Ranch House  
 2K13 - Blocks in yard  
 2K14 - Cathedral Mtn from US 90  
 2K15 - view on Iron Mtn Ranch next  
       gully east of 7214 showing Word 1 &  
       Word 3 capping hill  
 2K16 - Loc 720d, 721x, 721y  
 2K17, 18 - Cacti at 7212

722e is in the upper ledge (thick  
 bioherm) of the lower word clt is the  
 one forming the thick layer at 720d  
 clt is characterized as a light buff  
 calcareous with numerous siliceous  
 blebs.

721z is 45 higher than the thick  
 ledge and corresponds to 720d. At  
 721z however the lenses in the  
 yellow word are few, small and  
 scattered.

2K19, 20 West side Leonard Mtns

The 722e represents the middle  
 biohermal ledge on this side of  
 the valley. In most places fossils  
 other than corals are rare in  
 this ledge

0879

(22)

June 28 -

Peak

2K 21 - Sullivan from pass on  
Dove Ranch. 11

710 h - Small chonetid bed forms a band  
about 4' thick around the knob  
at 5250' and about 30' below the crest  
of the knob. The chonetids are distinctive  
but very scattered and had to be  
collected in individual small pieces  
with one or two specimens to the piece.  
The bed is at about 5220'.

2K 22 - Yellow daisies (small, sized quite

afternoon interrupted by rain  
but three hours were spent in  
prospecting the west side of the  
back slope of the hill just east  
of Sullivan Peak. The rock is  
massive mostly calcarenous with  
long slender Cupfossils and silica  
blobs. Coscinophora occurs at top.  
Other fossils are concentrated  
in patches and are usually not  
obtainable because of the massive  
nature of the rock. Some limestone  
cgl appears at the top.

2K 23 - 707E with 75mm lens from  
base of mtn.

0880

(23)

June 29.

Went to spur of Sullivan's Knob for blocks.

The zone with Chonetina is the lowest zone of brachiopods and occurs 185 feet below the top of The nose or at 5165 feet. This zone appears to be about four feet thick below it the rock is very thin-bedded.

The next 76 feet above the Chonetina zone has few fossils, says a few high spiraled snails. Very abundant from about 5241 feet to 5257 feet the rock is highly fossiliferous and this is the abundant concentration of brachiopod and the part from which our blocks come. From 5157 feet to 5285 the rock is crowded with bryozoans and is cherty.

Above 5285' to top of knob at 5350' the rock is like platey containing many fusulines in places. At top of knob and along narrow ridge of hill Coccomytila was seen and the rock is full of long fine corals and blebs of silice. The top is like that of the hill immediately to the east.

In late afternoon visited 7102 which is the top of The Burnt House. Here it is very cherty containing with small pebbles and what appear to be boulders of limestone, well rounded. Sponges and fragments of sponges are abundant. Unable to rediscover the collecting spot of 7102.

(D)

J 30-61 - Went up first gully from fault to check beds between Head Ledge and Leon galls, #1. The rock is mostly shale, actually clay shale in places but has lentibular limestone lenses of greater or lesser length. length. Beds are detrital and have much broken material in them. In the lower 50' some of these lenses and plates have the small Elliottella-like productid. I think this is its proper horizon. The shales generally weather yellow and the sand and sandy cl. ls are also yellow.

722 h - This is on the side of the spur toward the Sullivan Ranch road about 55' below the top. The beds are on the south facing slope. Mostly detrital limestone with iron-silicic brown chert containing Sphaeridophora. The zone is about 16 feet thick and occurs at about 4695' to 4685'. This corresponds to one of my 707 numbers.

2K24 - Windmill Hill from west side and taken from Sullivan Ranch road showing 2 ledges with shale between

2K25 - Corningboro Hill from SW

2K26-30 - Windmill Hill

2K31 - Strom approaching Iron Mtn.

2K32 - Lewis Hill from Windmill Hill

2K33 - J 30-61

2K34 - Spur.

(25)

2K35 - Thick cyl south middle  
Lemont Hills

2K36 - Contact Dev. & Wolfcamp  
2K37 - High hill just east of  
windmill and 2K36.

3K1-9 lost - film wrinkled

3K10-12 - Coscinoglossa bed on Decie's

3K13,14 - Middle Decie with Lemont  
Hills cyl in foreground, one to N(13), one  
to west(14)

3K15 - Lemont Hills cyl.

3K16-36 - Spool calcareous out of rock  
foreground.

Jy 1-61 Went up gully just W. of 708c.

First 30' above Hess ledge consists  
of thin bedded yellow shale becoming  
mealy limestone for 1 or 2 feet then  
hard detrital ls for one foot. Then  
mealy limestone & *Coccolithella* was  
found. This interval is stratigraphic

0-16 steps vertical above Hess (including  
30' described above). The ravine is covered  
except for the lower, 0' vertical.

16-27 - Mostly dark shale with thin  
layers of ls subordinate. Here I saw  
a block with many small prod. like 707 ha.  
At top of 16 comes a mealy band of 1'  
with fossils (n. gen. prod. like *Spirifer*)  
then 2' hard siliceous shale followed  
by a 3' limestone cyl. with *Diploisma*  
This forms top of 2071 Boulders in  
cyl. up to 3'.

27-28 - About 5½' of hard bedded bent  
dark gray but weathering yellow.

Top of 16  
Top of 2071

28-29 - Mostly shale

(26)

29<sup>+</sup><sup>30'</sup> Thick bed of dolomitic limestone with brown siliceous shales containing *Spyridiophora*, n.gen., Pickelbacker-like Leptodid, *Meekella*, spiriferids. The top of this 11' interval has another 2' of chert. *Limbella*.

31<sup>+</sup>32 - Thick bed of ls congl. with boulders up to 4' in one direction

33-36 - About 22' mostly of chert + thin bedded ls.

37 through 40 - Mostly thick bedded ls. one to 3' thick with siliceous shales + some interbedded chert.

41 thru 45. - 27' of massive cyl. having limestone and glauconite pebbles. Capping ledge is 2' of sandstone making total of 29.0

46, 47, 48<sup>+</sup><sup>49</sup> all in thin bedded 2" to one foot of sandstone and sandy limestone which terminate the Leonard #1. Above it is the yellowish to orange siliceous shale of the Leonard.

The Leonard #1, I should say extends from 29-49 = 113' and they *Spyridiophora* are in the lower part.

In the next ravine east the 22' (only) of sandstone + sandy limestone are not present and the Leonard sits on cyl. with bioturbation but also some sand in the cyl.

The Leonard is more siliceous + more blocky than the interval between Kunkle Ledge + Leonard #1

0884

(26)

At Jy 1-61 I estimate Hess ledge at about  
4650'

4K 1-13 - Hill 5300 on Dicicos  
8 & 11 are of 7080

4K 14 - Dugout open from N side  
4K 15, 16 - *Saccinctella biohem* S of  
Arnold Ranch.

4K 17 - flowers.

4K 18-23 - Biohems & cgl. at Jy 2-61  
(rare flowers)

Jy 2-61 - 2 large biohems flanked  
on each side and in between  
by conglomerate. The biohem has cgl  
at the base. (ls, cgl) is of light gray  
limestone with much scattered  
siliceous material. Small corals  
fairy oolina and scattered rocks. Siliceous  
material might be algal. About 30' high &  
about 100' wide. Some of the siliceous  
material is bryozoog. In places a cgl  
of huge crinoid stems at base.

The western biohem is about 25' high  
and 75' long and sandwiched between  
cgl with huge boulders. The upper part  
of the biohem overlies the lower part  
of the cgl. It apparently overlies cgl  
which can be seen at the base of the  
biohem. Some cgl. & pebbles in biohem.  
The biohem rock is limestone.

- 4K24 - Limestone Sand & Decie  
 4K25, 26 - Yellow flowering Dugout.  
 722j - limestone bed between Hess  
Ledge + Leonard #1. Contains small  
 pristodontids suggestive of one from  
 708c. This should be compared  
 closely with the small productids  
 from 722ha. The two may be the  
 same. This would also account for  
 the stratifications which may be the  
 same. This location is about 75 feet  
 above the Hess Ledge (guess). Saw  
Spiridophora here.  
 4K27 - Hess ledge all gl. about  
 75-100' thick.  
 4K28 - Some kind of sager.

Jy 3-61 - Low hill of Leonard Ls #1, mostly  
 Calcareous conglomerate, coarse  
 grained in thick layers. Fossils few  
 scattered and badly broken. Not  
 coarsely conglomeratic as on Decie's place.  
 ✓ 722k - a cut bank in the yellow shale  
 between Hess Ledge and top of Leonard  
 #1, at a guess 75' below top of Leonard  
 #1. Saw small productids, like those  
 from 722j and Limbella & Spiridophora  
 Chonetes. The thick pinkish gray chert is present  
 in Leonard #1.

Between #1 & #2 is much sand & chert  
 in the form of lumps, pinkish & yellow.  
 We saw few fossils in the limestone,  
 mostly small productids.

4K29 - flowers (red).

4K30, 31 - Dugout Mtn showing Wolfcamp  
 shale lens

4K32 - 707a

50  
259  
114  
303  
726

55  
15  
275  
55  
825

0886

4K 33,34 - WC Hills  
4K 35 - Neal Ranch  
4K 36 - 701d from east side

- 5K 1 - 701d close on east side  
5K 2 - Stratiform bioherm  
3 - Side view up Geologists Canyon  
4 - Eustermos + bioherm 701C. or  
Leptodid bioherm.  
5 - View up geologists canyon showing  
701a, bed 4 & 9 - Failed to step down  
6 - same as 5  
7,8 - West end of 701h showing  
mosaic under it  
9,10,11 - 701k bioherm + mosaic  
12 - up Geologists Canyon.  
13,14 - 706 e.

Locality St. July 4

West base of hill west of Wolf  
Camp Hills. Stratiform beds of  
Upper WC.

0887

July 4 - Went to Wolfcamp Hills where we collected 3 blocks from the Stratiform beds.

In afternoon went to Hess Ranch for 706<sup>a</sup> blocks for Stebbins and Winston. Called on Hess family at the Ranch house.

July 5 - packed all day. Wrapped 42 ~~blocks~~ blocks for shipment and have 40 to go

July 6 - Finished packing - 81 bundles and 4 boxes.

July 7 Shipped boxes

0888

July 8 - Traveled from Marathon to Van Horn. Arrived late morning. Had car looked at. Afternoon I called on Mr. Nutt for permission to go to Red Tank Canyon. Received rooms at Nickel Creek Camp.

725a = Jy. 9 - Layer of fossiliferous shales. About 30' below top of hill facing east west flowing ravine on west side of divide in Red Tank Canyon. Contains *Leucostrophus*. Occurs at about 4920'. Took 2 small pieces.

725b = This is CMNH #700 it is on the east side of the east ravine flowing west on the west side of the ravine. The bed is about half way up the hill between the top of the hill and the surface of the divide. The bed contains large productids, *Leptena* and some others. We took 5 small pieces. The elevation is at about 4750'.

order

0889

July 19 - Worked on NE side  
last hill of Baylor Mtns on  
the north (side) of Rio Mtns.

Hill 4422 (4410) on west side  
US 54. Took 5 blocks and  
some small pieces

725c - Thin seam of fossils about  
130 feet above the Huaco limestone

725d - Mollusc bed about 108'  
above Huaco limestone

Refused entrance to Victoria  
Canyon, came back to Van Horn  
and prepared 11 blocks & one  
bundle for shipment.

0890

July 11 - Sent 12 bundles totaling  
740 pounds from Van Horn. Left  
town about 9:30 arrived Nickel

Camp 11:00 A.M. Went east of the  
Nickel Creek place to a hill N of  
the highway and about opposite  
the entrance to the D Ranch  
on the N side of the road. Here  
found extensive exposures of  
Laram and took 4 blocks and  
2 small pieces numbered 725e.

725e

725e - About  $\frac{1}{4}$  mi N of U862-180,  
 $3\frac{1}{4}$  miles NE of Hegler Ranch, and  
 $\frac{1}{2}$  mile NE of junction of Pratt  
Place road with main highway  
and opposite present junction of  
D Ranch road with main highway

725i — Longest Capitan or uppermost  
Pinery Smith Canyon, north of  
Frijoles, Texas

725j — Capitan — Smith Canyon

July 14 — Went up Smith Canyon to see  
Capitan. Mostly massive dolomitic  
and with few fossils. Collecting very  
poor.

725k — One block about 500' below top in  
canyon N of Pine Spring

725-l — Mostly from about 500' below  
top of Canyon N of Pine Spring.  
Some several hundred feet  
lower.

725m Very top of canyon N of Pine  
Spring.

July 15 — Went up Canyon N of upper Pine  
Spring on a fine trail. Climb took  
3 hours. At very top or edge of plateau  
The Capitan contains a great mass  
of fusulines. The limestone for the  
upper 750 feet is mostly light  
colored, rather smooth and  
with scattered bioclastic pods. Collecting  
was disappointing.

0892

5K-23 - Rugged ridge from  
Nebble Creek Camp

Mr. R. A. Legon, Pine Spring Route, via Laramie  
Nebel not Nebble

5K 24, 25 - Nipple Hill from Hager place  
5K 26, 27 - Up Pine Spring & Canyon to N

0893

# Blocks from Guadalajara

Tamar	725 e	-	-	-	-	-	-	4
Pegler	731	-	-	-	-	-	-	6
Getaway	Newell	600						1
Rader	725 f	-						6
Rader	725 g	-						1
Piney	725 h	-						2
Piney	725 m	-						7
Rader	725 o	-						1
								22

about 2700 lbs.

0894

# Numbers Available

7/9 周一

~~700 8/13~~

721 3103-5, 5403-5, X, Y, Z

722 ~~02~~-2

723 a-2

~~7249-2~~

725<sup>c</sup> - Z

## List of blocks

7214 - 0 "14 small blocks"

~~719x-~~

- 7192 -

~~7204~~

\* 721A  
\* 721S

x 7215  
x 7217

1969

703C -

+ 7214 -

$$\begin{array}{r} \times 7215 \\ \hline \end{array}$$

1720d -  
EPA-N

$$\begin{array}{r} \times 721x - \\ \hline \end{array}$$

X 7214 —  
7214 —

72102

X 7229  
7226

✓ 7224 -  
7078 -

10/2 -  
x 7229 -

x 322 Ah -  
x 722 - f

~~X 922-2~~

10930 Jozefow

50

80

7  
14  
22  
27  
21  
22  
91  
34  
61  
14  
18  
2  
13  
4

121